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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,451	01/16/2001	Joseph W. Tsang	10982033-1	5127
7590	12/16/2003			
HEWLETT-PACKARD COMPANY Intellectual Property Administration P.O. Box 272400 Fort Collins, CO 80527-2400			EXAMINER	
			SHOSHO, CALLIE E	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/761,451	TSANG ET AL.
	Examiner Callie E. Shosho	Art Unit 1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 10 October 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 10-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 10-27 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s) _____.

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/10/03 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 10, 16, and 22 are each amended to recite that the two part system consists essentially of a reactive monomer or oligomer (claim 10) or first reactive component (claims 16 and 22) "optionally" in vehicle and at least one second component selected from the group consisting of polyols and polyvinyl alcohols plus a base catalyst "optionally" in a vehicle (claims

10 and 22) or “optionally combined with at least one ink jet ink” (claim 16). It is the examiner’s position that the insertion that the reactive monomer or oligomer or first reactive component is “optionally in vehicle” and the second component is “optionally” in a vehicle or “optionally” combined with at least one ink jet ink fails to satisfy the written description requirement under the cited statute since there does not appear to be a written description requirement of these phrases in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. Applicant has not pointed to any portion of the specification, and examiner has not found any support for the cited phraseology in the specification as originally filed.

Page 3, lines 16-20 and page 21, lines 25-31 of the present specification disclose that the two part system comprises (1) reactive monomer or oligomer in vehicle and (2) at least one second component selected from the group consisting of polyols and polyvinyl alcohols plus a base catalyst while page 21, lines 29-31 discloses that the second component is contained in at least one ink jet ink cartridge while page 4, line 14 discloses that the ink comprises vehicle.

Due to the phrase “optionally in vehicle”, the present claims encompass embodiments wherein the reactive monomer or oligomer or first reactive component is either in vehicle or not. However, as set forth on pages 3 and 21 of the specification as described above, there is only support in the present specification for reactive monomer or oligomer in vehicle. There is no support for the recitation that the reactive monomer or oligomer is not in vehicle and thus, no support for amending claims 10, 16, and 22 to recite that the reactive monomer or oligomer or first reactive component is “optionally” in vehicle.

Further due to the phrase “optionally” in vehicle or “optionally” combined with at least one ink jet ink, the present claims encompass embodiments wherein the second component is either in vehicle or not or combined with ink jet ink or not. However, as set forth on page 21, lines 29-31 of the present specification, given that the second component is contained in at least one ink jet ink cartridge and given that the ink comprises vehicle, there appears to only be support in the present specification for second component in vehicle or combined with ink jet ink. There appears to be no support for the recitation that the second component is not in vehicle or not combined with an ink jet ink and thus, no support for the recitation that the second component is “optionally” in vehicle or “optionally” combined with at least one ink jet ink.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 10 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al. (U.S. 5,640,187) in view of Lawrence et al. (U.S. 6,280,027) and Thompson et al. (U.S. 6,341,856).

Kashiwazaki et al. disclose a fixative for ink jet printing wherein the fixative underprints the ink and wherein the fixative comprises vehicle and 0.001-20% polyurethane (col.2, lines 18-27, col.6, lines 25-29, col.7 lines 18-19 and 23-25).

The difference between Kashiwazaki et al. and the present claimed invention is the requirement in the claims of (a) two-part system, (b) glass transition temperature and melting temperature of the polymer, and (c) amount of reactive monomer.

With respect to difference (a), it is noted that the present claims require a fixative comprising a reactive monomer such as isocyanate and second component such as polyol wherein the reactive monomer and second component react to form a polymer on the printing medium while Kashiwazaki et al. disclose jetting a fixative comprising polyurethane onto a

printing medium. It is well known that polyurethane is formed by the reaction of isocyanate and polyol.

Noting that the present claims are directed to a fixative, and further that the claimed fixative is the same as the fixative of Kashiwazaki et al. once the isocyanate and polyol are reacted on the printing medium, that is, after reaction the claimed fixative comprises polyurethane, i.e. formed by the reaction of isocyanate and polyol, as does the reference fixative, it is not seen as to how the process of forming the fixative by separately combining the ingredients via a reaction between isocyanate and polyol (two-part system) would lead to the fixative as being patentable over the same fixative formed by directly jetting the polymer into the printing medium (one-part system). Moreover, there is no evidence to indicate any criticality of the two-part system over the one-part system.

With respect to difference (b), Kashiwazaki et al. disclose the use of polyurethane, but do not disclose the glass transition temperature or melting temperature of the polymer. Lawrence et al., which is drawn to ink jet printing process comprising printing ink onto polyurethane layer, disclose the use of polyurethane which has glass transition temperature of -50 to 100 °C in order to enhance the fixability of the printed image which produces an image which does not smear when subjected to water (col.1, line 66-col.2, line 4 and col.4, lines 63-64).

Further, with respect to the melting temperature, Thompson et al. disclose that ink jet printers normally operate at temperatures of 50-150 °C (col.10, lines 38-39). Given that the fixative of Kashiwazaki et al. is printed using an ink jet printer and further given that in order that the ink be properly ejected from the nozzles of the ink printer the fixative must be in liquid form, it would have been obvious to one of ordinary skill in the art to use polyurethane which

melts at 50-150 °C in order that the fixative can be properly liquefied and ejected from the ink jet printer without clogging the printer nozzle.

Given that the claimed fixative is the same as the fixative of Kashiwazaki et al. once the isocyanate and polyol are reacted on the printing medium and further given the motivation for using polyurethane having glass transition temperature and melting temperature as described above, it therefore would have been obvious to one of ordinary skill in the art to use the fixative of Kashiwazaki et al. with such polyurethane, and thereby arrive at the claimed invention.

With respect to difference (c), Kashiwazaki et al. disclose the use of polyurethane in the fixative fluid. It is well known that polyurethane is formed by reacting isocyanate and polyol.

Thompson et al., which is drawn to reactive ink composition, disclose reacting 2-40% isocyanate with polyol (col.13, lines 23-24) wherein the amount of isocyanate controls the degree of crosslinking (col.5, lines 45-47), which in turn would control the properties of the final reacted product, i.e. polyurethane, such as viscosity, molecular weight, and solubility.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of isocyanate when forming the polyurethane of Kashiwazaki et al. in order to produce polyurethane with the desired viscosity, molecular weight, and solubility, and thereby arrive at the claimed invention.

7. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al. in view of Lawrence et al. and Thompson et al. as applied to claims 10 and 14-15 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

The difference between Kashiwazaki et al. in view of Lawrence et al. and Thompson et al. and the present claimed invention is the requirement in the claims of different color inks.

Kashiwazaki et al., disclose underprinting an ink composition with fixative. However, there is no disclosure of using the fixative with a set of different color inks as presently claimed.

Kurabayashi et al. disclose using fixative with a set of inks including yellow, cyan, magenta, and black inks in order to produce a multicolor image with no intercolor bleed (col.3, lines 23-25 and col.4, lines 37-39).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use fixative of Kashiwazaki et al. with set of different color inks in order to prevent bleed between the inks, and thereby arrive at the claimed invention.

8. Claims 10 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al. (U.S. 5,640,187) in view of Lawrence et al. (U.S. 6,280,027) and Thompson et al. (U.S. 6,341,856).

Kashiwazaki et al. disclose a fixative for ink jet printing wherein the fixative either underprints or overcoats the ink and wherein the fixative comprises vehicle and 0.001-20% polyurethane (col.2, lines 18-27, col.6, lines 25-29, col.7 lines 18-19 and 23-25).

The difference between Kashiwazaki et al. and the present claimed invention is the requirement in the claims of (a) two-part system and (b) glass transition temperature and melting temperature of the polymer.

With respect to difference (a), it is noted that the present claims require a fixative comprising a reactive monomer such as isocyanate and second component such as polyol

wherein the reactive monomer and second component react to form a polymer on the printing medium while Kashiwazaki et al. disclose jetting a fixative comprising polyurethane onto a printing medium. It is well known that polyurethane is formed by the reaction of isocyanate and polyol.

Thompson et al. disclose reacting 2-40% polyisocyanate with polyol and further disclose storing polyol and polyisocyanate in separate reservoirs, i.e. cartridges, in order to prevent premature reaction between the two components (col.5, lines 61-62 and col.6, lines 18-20). It would have been within the skill level of one of ordinary skill in the art to recognize that such premature reaction would result in formation of undesirably high molecular weight or highly crosslinked polymer before printing wherein such polymer would clog the printer nozzles.

With respect to difference (b), Kashiwazaki et al. disclose the use of polyurethane, but do not disclose the glass transition temperature or melting temperature of the polymer. Lawrence et al., which is drawn to ink jet printing process comprising printing ink onto polyurethane layer, disclose the use of polyurethane which has glass transition temperature of -50 to 100 °C in order to enhance the fixability of the printed image which produces an image which does not smear when subjected to water (col. 1, line 66-col.2, line 4 and col.4, lines 63-64).

Further, with respect to the melting temperature, Thompson et al. disclose that ink jet printers normally operate at temperatures of 50-150 °C (col.10, lines 38-39). Given that the fixative of Kashiwazaki et al. is printed using an ink jet printer and further given that in order that the ink be properly ejected from the nozzles of the ink printer the fixative must be in liquid form, it would have been obvious to one of ordinary skill in the art to use polyurethane which

melts at 50-150 °C in order that the fixative can be properly liquefied and ejected from the ink jet printer without clogging the printer nozzle.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to form the fixative disclosed in Kashiwazaki et al. by a two-part system wherein polyol and polyisocyanate are kept in separate reservoirs and react on the printing medium to form the polyurethane in order to prevent premature reaction and further it would have been obvious to one of ordinary skill in the art to use polyurethane having glass transition temperature and melting temperature as described above in order to produce fixative which would enhance the fixability of the printed image as well as eject from printer nozzle properly, and thereby arrive at the claimed invention.

9. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al. in view of Lawrence et al. and Thompson et al. as applied to claims 10 and 14-15 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

The difference between Kashiwazaki et al. in view of Lawrence et al. and Thompson et al. and the present claimed invention is the requirement in the claims of different color inks.

Kashiwazaki et al., disclose underprinting an ink composition with fixative. However, there is no disclosure of using the fixative with a set of different color inks as presently claimed.

Kurabayashi et al. disclose using fixative with a set of inks including yellow, cyan, magenta, and black inks in order to produce a multicolor image with no intercolor bleed (col.3, lines 23-25 and col.4, lines 37-39).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use fixative of Kashiwazaki et al. with set of different color inks in order to prevent bleed between the inks, and thereby arrive at the claimed invention.

10. Claims 16, 20-22, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al. (U.S. 5,640,187) in view of Lawrence et al. (U.S. 6,280,027) and Thompson et al. (U.S. 6,341,856).

Kashiwazaki et al. disclose method for printing on a print media including printing ink jet ink on the print media and printing a fixative, wherein the fixative comprises 0.001-20% polyurethane, on the print media wherein the method comprises providing at least one cartridge containing at least one fixative and providing at least one cartridge containing ink jet ink, and printing the fixative followed by printing the ink whereby the polyurethane is printed on the print media to fix the ink. Thus, it is seen that Kashiwazaki et al. disclose combination of fixative and ink (col.2, lines 18-27, col.6, lines 25-29, col.7, lines 18-19 and 23-25, and col.19, lines 19-24).

The difference between Kashiwazaki et al. and the present claimed invention is the requirement in the present claims of (a) two-part system and (b) glass transition temperature and melting temperature of the polyurethane.

With respect to difference (a), it is noted that the present claims require a method or combination comprising a reactive monomer such as isocyanate and second component such as polyol wherein the reactive monomer and second component react to form a polymer on the printing medium while Kashiwazaki et al. disclose jetting a fixative comprising polyurethane

onto a printing medium. It is well known that polyurethane is formed by the reaction of isocyanate and polyol.

Thompson et al. disclose reacting 2-40% polyisocyanate with polyol and further disclose storing polyol and polyisocyanate in separate reservoirs, i.e. cartridges, in order to prevent premature reaction between the two components (col.5, lines 61-62 and col.6, lines 18-20). It would have been within the skill level of one of ordinary skill in the art to recognize that such premature reaction would result in formation of undesirably high molecular weight or highly crosslinked polymer before printing wherein such polymer would clog the printer nozzles.

With respect to difference (b), Kashiwazaki et al. disclose the use of polyurethane, but do not disclose the glass transition temperature or melting temperature of the polymer. Lawrence et al., which is drawn to ink jet printing process comprising printing ink onto polyurethane layer, disclose the use of polyurethane which has glass transition temperature of -50 to 100 °C in order to enhance the fixability of the printed image which produces an image which does not smear when subjected to water (col.1, line 66-col.2, line 4 and col.4, lines 63-64).

Further, with respect to the melting temperature, Thompson et al. disclose that ink jet printers normally operate at temperatures of 50-150 °C (col.10, lines 38-39). Given that the fixative of Kashiwazaki et al. is printed using an ink jet printer and further given that in order that the ink be properly ejected from the nozzles of the ink printer the fixative must be in liquid form, it would have been obvious to one of ordinary skill in the art to use polyurethane which melts at 50-150 °C in order that the fixative can be properly liquefied and ejected from the ink jet printer without clogging the printer nozzle.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use two-part system in Kashiwazaki et al. wherein polyol and polyisocyanate are kept in separate reservoirs and react on the printing medium to form the polyurethane in order to prevent premature reaction and further it would have been obvious to one of ordinary skill in the art to use polyurethane having glass transition temperature and melting temperature as described above in order to produce fixative which would enhance the fixability of the printed image as well as eject from printer nozzle properly, and thereby arrive at the claimed invention.

11. Claims 17-19 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al. in view of Laurence et al. and Thompson et al. as applied to claims 16, 20-22, and 26-27 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

The difference between Kashiwazaki et al. in view of Lawrence et al. and Thompson et al. and the present claimed invention is the requirement in the claims of different color inks.

Kashiwazaki et al., disclose underprinting an ink composition with fixative. However, there is no disclosure of using the fixative with a set of different color inks as presently claimed.

Kurabayashi et al. disclose using fixative with a set of inks including yellow, cyan, magenta, and black inks in order to produce a multicolor image with no intercolor bleed (col.3, lines 23-25 and col.4, lines 37-39).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use fixative of Kashiwazaki et al. with set of different color inks in order to prevent bleed between the inks, and thereby arrive at the claimed invention.

Response to Arguments

12. Applicants filed 1.132 declaration on 9/9/03. In the Advisory Action mailed 10/3/03, the examiner stated that the declaration was not successful in establishing unexpected or surprising results over the cited prior art given that the data is not commensurate in scope with the scope of the claims and that the declaration does not provide proper side-by-side comparison between two-part system and one-part system.

With the amendment of claims 10, 16, and 22 in the amendment filed 10/10/03, the data is now commensurate in scope with the scope of the claims, however, it appears that such an amendment is not supported by the disclosure of the original specification (see paragraph 3 above). However, even with the amendment to the claims, the examiner's position remains that the declaration does not provide proper side-by-side comparison between two-part system and one-part system.

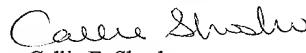
Specifically, the declaration compares the two-part system of example 20 with the one part system of examples 9 or 11 which use the fixer of example 3 or one-part system of examples 13, 15, or 17 which use the fixer of example 6. The vehicle of the two-part system comprises glycerol, tetrahydrofuran, and N-methyl pyrrolidone (as seen on page 2 of the declaration) while the vehicle of the one-part system of example 9 comprises 2-pyrrolidone, 1,5-pentanediol, and Surfynol (as seen on page 15 of the present specification) while the vehicle of the one-part system of examples 13, 15, or 17 comprises tetrahydrofuran or methyl ethyl ketone (as seen on page 16 of the present specification). Thus, it is not clear if the differences between the two-part system and one-part system as set forth in Table IV and Table V of the declaration are due to the differences in vehicle or due to the use of one-part system versus two-part system.

Further, the declaration compares two-part system of example 20 with one-part system of examples 13, 15, or 17. The two-part system utilizes isocyanate and polyol which will react to form urethane polymer while the one-part system uses styrene-allyl alcohol polymer (see page 16 of the present specification). Thus, it is not clear if the differences between the two-part system and one-part system as set forth in Table V of the declaration are due to the differences in polymers utilized or due to the use of one-part versus two-part system.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
12/5/03